



CDC Global Health: 2023 Highlights and Impact



COVID-19 immunization being administered at a Zambia Field Vaccination Site. Credit: Santos Sanchez/CDC

The U.S. Centers for Disease Control and Prevention (CDC) protects people in the United States and around the world by preventing, detecting, and responding to disease threats—anytime and anywhere.

Alongside our global partners, we're working hard to **stop health threats at their source before they spread to the United States and other countries**. For example, in early 2023, a CDC-trained community health worker was the first to recognize an unidentified disease spreading in the Kagera region of Tanzania. Her knowledge led her to immediately notify Ministry of Health officials, enabling them to identify a deadly Marburg virus outbreak, act swiftly, and contain it with no cross-border transmission reported.

We are working to **contain disruptive global disease outbreaks**. Even if they don't spread widely, outbreaks can create major disruptions to travel and trade, to countries' stability, to the ability to continue routine healthcare and prevention, and to the safety of families and children. When a large cholera outbreak struck Haiti at the end of 2022, CDC led the interagency U.S. response, in close collaboration with the government of Haiti, to provide technical assistance and support in surveillance/laboratory capacity, vaccination, treatment and case management, risk communication and community engagement, and water, sanitation and [hygiene](#).

We are working to **use global data for disease prevention and mitigation programs in the United States and other countries**. For example, in 2023 we saw the first cases of domestically acquired malaria in the U.S. in 20 years. Because CDC has global expertise at the ready, we were able to quickly support states to contain it. We also rely on global data to detect influenza strains around the world and use them in flu vaccines, and to detect emerging antimicrobial resistant pathogens so we can preserve the power of lifesaving antibiotics.

We are working to **save lives and improve health globally**. One of the greatest contributions to the world's health has been our work to end the HIV and TB epidemics and contribute to the fight to eradicate polio and control and prevent vaccine preventable diseases. Through the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), CDC has built up sustainable local core capabilities and trusted, longstanding relationships that improve health overall. CDC is also supporting countries and partners to rapidly direct attention and resources toward essential immunization services and reach all children, everywhere.

CDC's global work strengthens the knowledge, systems, and partnerships needed to find and face all types of health challenges. When COVID struck, many countries relied heavily on laboratory and workforce capabilities built through our prior investments in HIV, TB, antimicrobial resistance, enteric diseases, and global immunization and global influenza programs. And the benefit goes both ways – for example, next-generation sequencing and wastewater surveillance capabilities grown during the pandemic are now being used for other diseases, such as mpox and bird flu.

That's why, as we look ahead, we will continue focusing on the core capabilities at the heart of everything we do. No matter the threat, we know we need the right **data and surveillance, laboratories, workforce and institutions, prevention and response, research and innovation, and policy, communications, and diplomacy**. This is the purpose of CDC's Global Health Strategic Framework, which will guide all our efforts going forward. By leveraging the full benefit of everything we're building globally, we can create a world where people in the United States and around the world live healthier, safer, and longer lives.

By the Numbers



Staffing

60+ country offices

in 6 regions

1,700 staff

working globally on more than 400 diseases and conditions.



Workforce

1,170 disease detectives

trained in 2023 through the flagship Field Epidemiology Training Program (FETP).

250 emergency managers

trained across 18 cohorts of the Public Health Emergency Management (PHEM) Fellowship.



Outbreaks

210 outbreaks

tracked in 237 countries, territories, and areas in 2023 alone.



Public Health Law

500 public health staff

trained in global health law and legal preparedness across CDC, regional, and partner networks in 2023.



Antimicrobial Resistance

365 healthcare professionals

trained on infection prevention and control measures as part of the response to a *C. auris* outbreak. Screening detected 59 patients with *C. Auris*.

10 countries

implementing the Enhanced Gonococcal Antimicrobial Surveillance Programme (EGASP) as part of the Global AR Laboratory and Response Network, with 5 added in 2023.



HIV & TB

12.6 million

people living with HIV receiving lifesaving CDC-supported antiretroviral treatment (ART) in 2023.*

445,000+

pregnant women living with HIV receiving CDC-supported treatment to prevent mother-to-child-HIV-transmission.*

10 million

people started on TB Preventive Treatment (TPT) since 2017 with CDC support, including ~1.5 million people in 2023 alone.**



Global Immunization

115 million

people received measles vaccine through supplementary immunization activities in 44 countries in 2022, helping to stop measles outbreaks where they start.†

90%

of the world free of wild poliovirus as of May 2024, including 5 out of 6 WHO regions.††

28 countries

received support from global partners to introduce new vaccines in 2022, ensuring equitable access and preventing disease, disability, and death.†††



Malaria

700 million

people supported by CDC as a co-implementer of the U.S. President's Malaria Initiative (PMI) alongside USAID, including distribution of 36.8 million insecticide-treated bed nets to protect people at risk of malaria.

1,300+ inquiries

addressed in 2023 by the malaria clinical consult service, in addition to 3000+ clinical and general public consults addressed by the Parasitic Diseases Hotline on diseases like chagas, cutaneous leishmaniasis, and trichomoniasis.



Flu

5.1 million doses

of flu vaccine as well as technical assistance provided to ministries of health in 21 countries through the Partnership for International Vaccine Initiatives (PIVI) since 2013.

* Source: FY23 Data for Performance Monitoring (DFPM)

** To calculate the sum of TB_PREV (D) from 2017-2023, we used data from MER Structured Dataset from 2017-2022 in addition to DFPM data for 2023

† Provisional data based on monthly data reported to WHO (Geneva) as of May 2024

†† These data unchanged come from the [most recent global measles MMWR](#). The next global measles update will be published November 14, 2024.

††† These data are from WHO/UNICEF estimates of national immunization coverage (WUENIC). The WUENIC data for 2023 will be published sometime around July 2024.

A Strategic Framework for Global Health

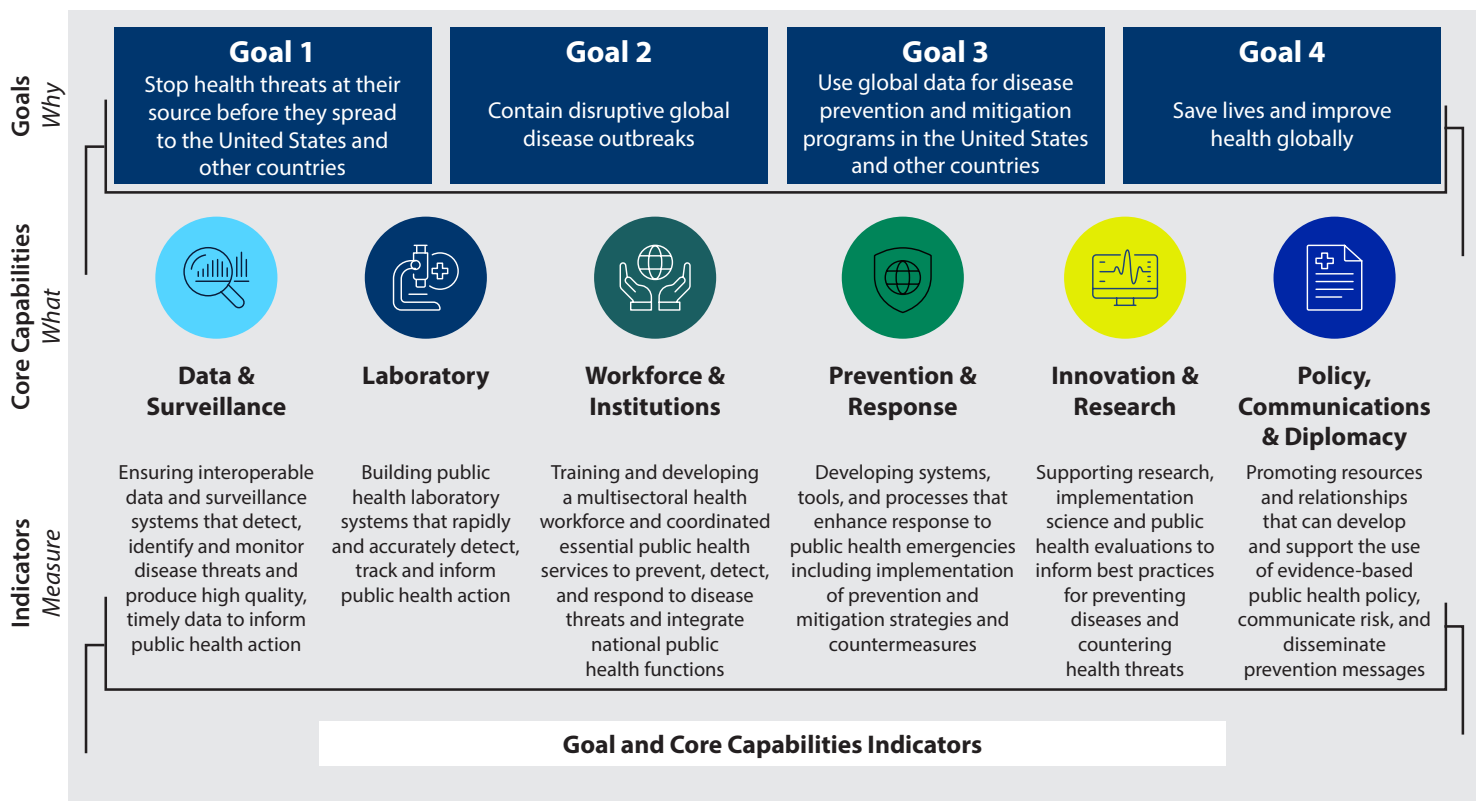
Four goals. Six core capabilities. Countless lives saved.

CDC's global work draws upon our deep scientific expertise and our ability to translate science into lifesaving action. CDC's **Global Health Strategic Framework** is a bridge that connects all of CDC's global health activities. It guides how we build, execute, and evaluate our global health work.

Together, the framework's four global goals and six core capabilities represent the "why" and "how" of CDC's global work. The framework is also the basis for creating indicators to track progress across the globe.

CDC's Global Health Strategic Framework builds transparency and accountability, which helps us better support our partners and achieve U.S. Government goals. At the same time, it ensures CDC is tactically developing and maintaining a robust response to existing and emerging global public health needs.

CDC Global Health Strategic Framework | Goals, Core Capabilities & Indicators



CDC is a key leader in implementing flagship global public health programs such as the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), U.S. President's Malaria Initiative (PMI), the Global Polio Eradication Initiative (GPEI), and Global Health Security Agenda (GHSA).

“No matter the disease or condition, this collaborative framework will increase CDC’s impact as we continue to protect Americans and save lives across the globe.”

**– Dr. Kayla Laserson,
Director, CDC Global Health Center**



A microbiologist works with CDC-donated equipment at the Scientific and Practical Center for Sanitary and Epidemiologic Expertise and Monitoring (SPC SEEM) in Kazakhstan. Credit: Maxim Malov/CDC

Data and Surveillance

CDC is ensuring interoperable data and surveillance systems that detect, identify, and monitor disease threats and produce high quality, timely data to inform public health action.



CDC is charged with protecting people around the world from over 400 known diseases and conditions, as well as being prepared for the unknown, every day. CDC's global data and surveillance work aims to ensure that countries can collect, analyze, visualize, use, and share high quality data on any disease or condition that impacts health. Public health surveillance provides an ongoing picture of the patterns of disease, which is critical to protecting people from existing and emerging threats.

Bird flu surveillance takes flight in Georgia thanks to academic partnerships

The small country of Georgia is famous among researchers for sitting at the intersection of three major flyways used by wildfowl during migration: the Black Sea, Central Asian, and East Asian. This makes it a critical hub for surveillance of avian influenza, also known as bird flu.

Thanks to an innovative partnership between public health experts at CDC Georgia and academic experts from the University of Cambridge and Ilia State University, Georgia's Ministry of Environmental Protection and Agriculture has successfully

developed the capacity to conduct surveillance and genomic sequencing of bird flu viruses.

Academic partners brought knowledge, contacts, relationships, and research that combined seamlessly with CDC's technical expertise, training, and local staff to make a significant impact on bird flu surveillance in Georgia. Using a One Health approach, these capacities help address a gap in global bird flu surveillance, protecting the world from emerging animal-to-human diseases.



Eurasian wigeons migrating through Central Asia. Credit: Getty



Participants attending the first global CoViNet meeting, Geneva, Switzerland. Credit: Adam MacNeil

After the Emergency: Maintaining the Capacity to Monitor SARS-CoV-2 Across the Globe

CDC continues to monitor SARS-CoV-2, the virus that causes COVID-19, by supporting critical data and surveillance networks, including CoViNet and the expanded Global Influenza Surveillance and Response System (GISRS).

Launched in reference laboratories in 20 countries, CoViNet is designed to share information on emerging SARS-CoV-2 variants. CDC provided the World Health Organization (WHO) with broad technical and financial support to develop and stand up CoViNet, which builds upon the WHO SARS-CoV-2 Reference Laboratory Network established in 2020. CoViNet adds important new animal health and environmental surveillance information, information on other coronaviruses (like

MERS-CoV), and enhanced capacity to identify novel coronaviruses that are harmful to human health. CoViNet will be used to help assess risk and select strains for upcoming vaccines.

Initially developed to monitor and protect people from flu, GISRS reaches across more than 100 countries. CDC helped incorporate SARS-CoV-2 data into the GISRS network. We also provided technical leadership to develop guidance that will be crucial to the successful, long-term strategic integration of SARS-CoV-2 and Respiratory Syncytial Virus (RSV) data into the platform. This will increase the ability to track dangerous respiratory threats.

“CDC’s global work is essential to our domestic infectious disease response work; it ensures we improve our understanding of public health threats and provides supports preparing vaccines and diagnostic tests if they are needed.”

**– Dr. Demetre Daskalakis
Director, CDC National Center for Immunization and Respiratory Diseases**

Laboratory

CDC is building public health laboratory systems that rapidly and accurately detect, track, and inform public health action.



Laboratories help confirm the presence of disease, pinpoint the cause of illness, and guide the right response to outbreaks. CDC's global laboratory work supports these capabilities by training skilled workers, improving diagnostics and specimen transport systems, and increasing biosafety and biosecurity. The goal is to ensure pathogens can be accurately tested and identified with a fast turnaround, so the right actions can be taken to contain the threat.

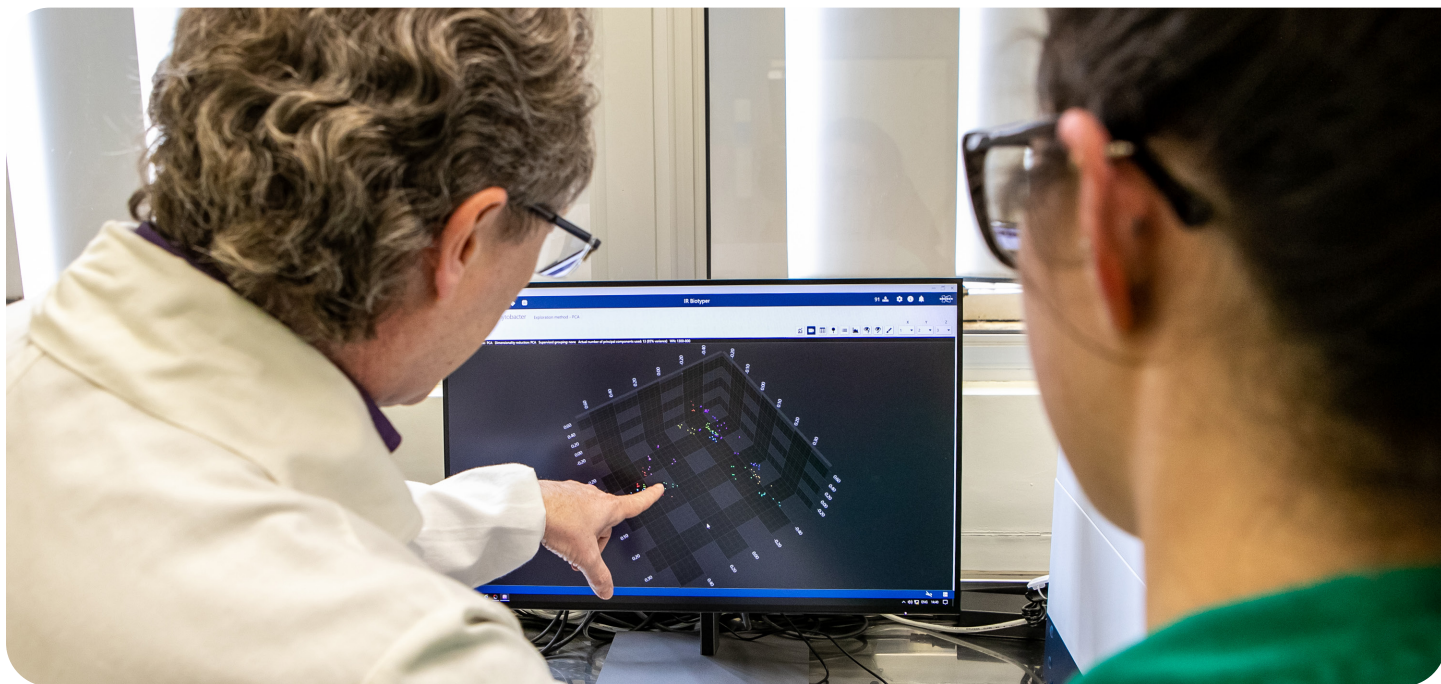
Strengthening Labs to Detect and Report Antimicrobial Resistance in Brazil

As part of CDC's Global Antimicrobial Resistance Laboratory and Response Network (Global AR Lab & Response Network), CDC and partners are working to help Brazil's laboratories better detect critical antimicrobial resistance (AR) threats and rapidly report them to health officials at local and national levels.

As of 2023, 218 training participants had learned how to identify AR pathogens and mechanisms of resistance, and how to integrate data into the National Antimicrobial Resistance Monitoring System of Brazil (BR-GLASS), a system that collects AR data from across the country. As reporting to BR-GLASS

grows, experts get a clearer picture of what types of AR pathogens are a threat and where they are found. This informs clinical decisions, guides response, and prevents AR threats from spreading. Strengthening BR-GLASS also supports global AR monitoring through WHO's Global Antimicrobial Surveillance System.

This work is the result of strong partnership with the Oswaldo Cruz Foundation (FIOCRUZ) through the Foundation for Scientific Technological Development in Health (FIOTEC), and the Brazilian Ministry of Health (MoH).



Training laboratorians to interpret results from the machine used to identify antimicrobials to which bacteria might be resistant. Credit: Roberto Dziura Jr

Launched in 2021, CDC's Global AR Lab & Response Network improves the detection of existing and emerging antimicrobial resistance threats outside of the U.S.

The Strengthening Laboratory Management Toward Accreditation program trains managers in lower-income countries to improve laboratory operations and achieve international accreditation standards. CDC also fosters laboratory leaders through the Global Laboratory Leadership Program, which emphasizes a One Health approach to strengthen global health security.



Laboratories are crucial to any country's health system – especially for screening, diagnosing, and monitoring diseases like HIV and TB. Credit: Getty

Shifting the Caribbean's HIV Landscape, One Laboratory Accreditation at a Time

When CDC and PEPFAR began working in the Caribbean more than a decade ago, no accredited government-owned clinical laboratories existed there. Samples for HIV testing often had to be shipped out of the region, which is costly and delays results. Patients weren't getting the level of care they needed and deserved.

With the backing of PEPFAR, the CDC's Caribbean Office (now known as the Caribbean and Central America Regional Office) embarked on a mission to place the patient at the heart of the work, demonstrating that improved diagnostics and accreditation would

enhance the delivery of lifesaving interventions and services. Building on successes in other regions of the world, the team tailored CDC and PEPFAR strategies to create a program for smaller lab spaces with limited resources. This ultimately led to the accreditation of ten government-owned clinical labs in the region.

These labs now help with surveillance of other infectious diseases and serve as referral labs for other countries in the region with less capacity. This ensures patients receive reliable and accurate results—a critical component in ending the HIV and TB epidemics.

"The presence of CDC as one of our laboratory partners has been invaluable."

– Dr. Ayanna Sebro,

Assistant Programme Director of the HIV/AIDS Coordinating Unit in Trinidad and Tobago

Workforce and Institutions

CDC is training and developing a multisectoral global health workforce and coordinated essential public health services to prevent, detect, and respond to disease threats and integrate national public health functions.



In a crisis, the most important asset a country can have is people who know what to do. CDC's global work to strengthen workforce and institutions bolsters the epidemiology, clinical, and laboratory workforce needed for today's and tomorrow's threats. Alongside partner countries, CDC is improving skills, building leadership, and supporting the institutions that house all of this expertise, creating a robust network of professionals who are ready to respond to whatever comes next.

First-Ever Immersion Training Equips the DRC with Skilled Emergency Managers

CDC's Public Health Emergency Management (PHEM) Fellowship invites public health experts from across the world to CDC's Atlanta headquarters to learn how to organize an emergency response in their countries. In 2023, CDC took the show on the road, expanding its PHEM training offerings through the launch of an international immersion training in the Democratic Republic of the Congo (DRC).

Sixty of DRC's public health experts gathered in Kisantu for five weeks of residential training. Participants learned how to use an Incident Management System (IMS), which is the gold standard in public health emergency operations centers in the U.S. and across the globe. At the end of the training, participants were certified as PHEM instructors for the country, meaning their knowledge will spread even further.

"One never knows when the next outbreak will occur. It's important that we continue to help countries strengthen their public health emergency response capacity through our globally recognized curricula."

**– Mark Frank,
Deputy Director, CDC Division
of Emergency Operations (DEO)**



DEO/GEMCD emergency management technical advisors with four of DRC's PHEM fellowship alumni and a representative from the National Public Health Institute. Credit: Kerrethel Avery

Since 1980, CDC has partnered with Ministries of Health in more than 80 countries to train “boots on the ground” disease detectives through the flagship Field Epidemiology Training Program (FETP). To better organize and coordinate public health expertise and systems, CDC works with countries to strengthen an interconnected base of national public health institutes (NPHIs) throughout the world.

Uganda’s Disease Detectives Play a Critical Role in Stopping Ebola

In an average year, Uganda experiences outbreaks of anthrax, Rift Valley Fever, rabies, measles, Crimean-Congo Hemorrhagic Fever, malaria, and tuberculosis—as well as chronic diseases and HIV. When Uganda’s Ministry of Health began receiving reports of a new Ebola outbreak in late 2022, the country’s FETP fellows jumped into action conducting case investigations to understand the spread and ensure sick people could be isolated quickly.

They started by working backwards, identifying cases linked to specific healthcare facilities. They built the first transmission tree, piecing together the early stages of the outbreak and rapidly linking new cases to known chains of transmission. They also conducted studies to better understand stigma among healthcare workers, post-traumatic stress disorder among patients and families, and specific risks encountered in patients’ homes.

The outbreak was stopped by January 2023, and more than 30 studies are still underway that will provide meaningful insights to prevent and reduce harm from Ebola in the future.

“It would have taken much longer to control the outbreak without this army of disease detectives.”

**- Julie Harris, PhD,
former CDC Uganda
Resident Advisor for FETP**



Ms. Mercy Wanyana, an Advanced FETP Fellow in Uganda, assembles the first transmission chain for the 2022 Ebola virus outbreak in Uganda in October 2022. Credit: Julie Harris/CDC Uganda

Prevention and Response

CDC is developing systems, tools, and processes that enhance response to public health emergencies including implementation of prevention and mitigation strategies and countermeasures to prevent transmission and treat diseases.



Disease knows no borders, as clearly demonstrated by the COVID-19 pandemic, detections of polio in previously polio-free areas, and outbreaks of mpox and Ebola. CDC's prevention and response work ensures that people have access to immunizations and non-pharmaceutical interventions to stay healthy. It also ensures countries have essential systems to act fast in any crisis, such as emergency operations centers staffed with skilled and ready responders.

Stopping an Outbreak in Its Tracks: Polio Response in Mozambique

Africa was declared free of wild polio in 2020. But in 2022, health workers detected a case of paralysis from wild polio in Malawi, which borders Mozambique. To keep polio from spreading further, more than 6 million children in Mozambique needed to receive multiple doses of polio vaccine. Local health workers also needed training on how to spot polio and what to do when they find it.

CDC sprang into action, deploying Portuguese-speaking staff, partnering with the Global Polio

Eradication Initiative (GPEI) on six rounds of mass polio vaccination campaigns, training local health partners in polio surveillance, and providing unique skills, such as expertise in detecting poliovirus in wastewater. Ultimately, eight cases were confirmed in Mozambique. But thanks in part to CDC, the spread of wild poliovirus in Southeastern Africa has stopped, preserving Africa's "wild polio-free" status. These efforts made 2023 a much less eventful polio year for Mozambique, while benefitting CDC's polio eradication effort overall.

Polio vaccines have prevented paralysis in an estimated 20 million children since 1988.



A mother holds her child, whose finger is being marked to show that the child received a polio vaccine. Credit: ©UNICEF/UN0632380/Lemos



CDC Director Mandy Cohen, U.S. Ambassador to Cambodia W. Patrick Murphy, NCIRD Director Demetre Daskalakis, and CDC's Global Health Center Director Kayla Laserson visit a live bird market in Cambodia. Credit: CDC Staff

Enhancing Pandemic Preparedness through Outbreak Response in Cambodia

During 2023, six human cases of H5N1 avian influenza (bird flu) were detected in Cambodia – the first human cases identified in the country in nearly a decade. The first two cases were in a father and a daughter, raising global concern of possible person-to-person transmission.

CDC staff arrived within 24 hours to aid in a comprehensive outbreak investigation that leveraged local epidemiology, laboratory, and response capacities. Investigators quickly determined the source of infection and shared accurate information with the

public. Throughout the investigation, CDC staff in Atlanta worked to support the in-country response and clarify the risk to the U.S. public. Successful and comprehensive response was made possible by two decades of CDC engagement in the region, including supporting influenza surveillance and technical collaboration, developing strong partnerships with local governments and other partners, and maintaining a strong regional presence through Influenza Regional Hubs that readily provide outbreak support, resulting in stronger global health security overall.

Innovation and Research

CDC supports research, implementation science, and public health evaluations to inform best practices for preventing diseases and countering health threats.



Research and innovation drive public health forward, extending the ability to protect people's lives and livelihoods, no matter where they live. CDC's global research and innovation work includes understanding why outbreaks are happening – uncovering who is getting sick, where, and why – and development of new diagnostics and assays that strengthen public health for generations to come.

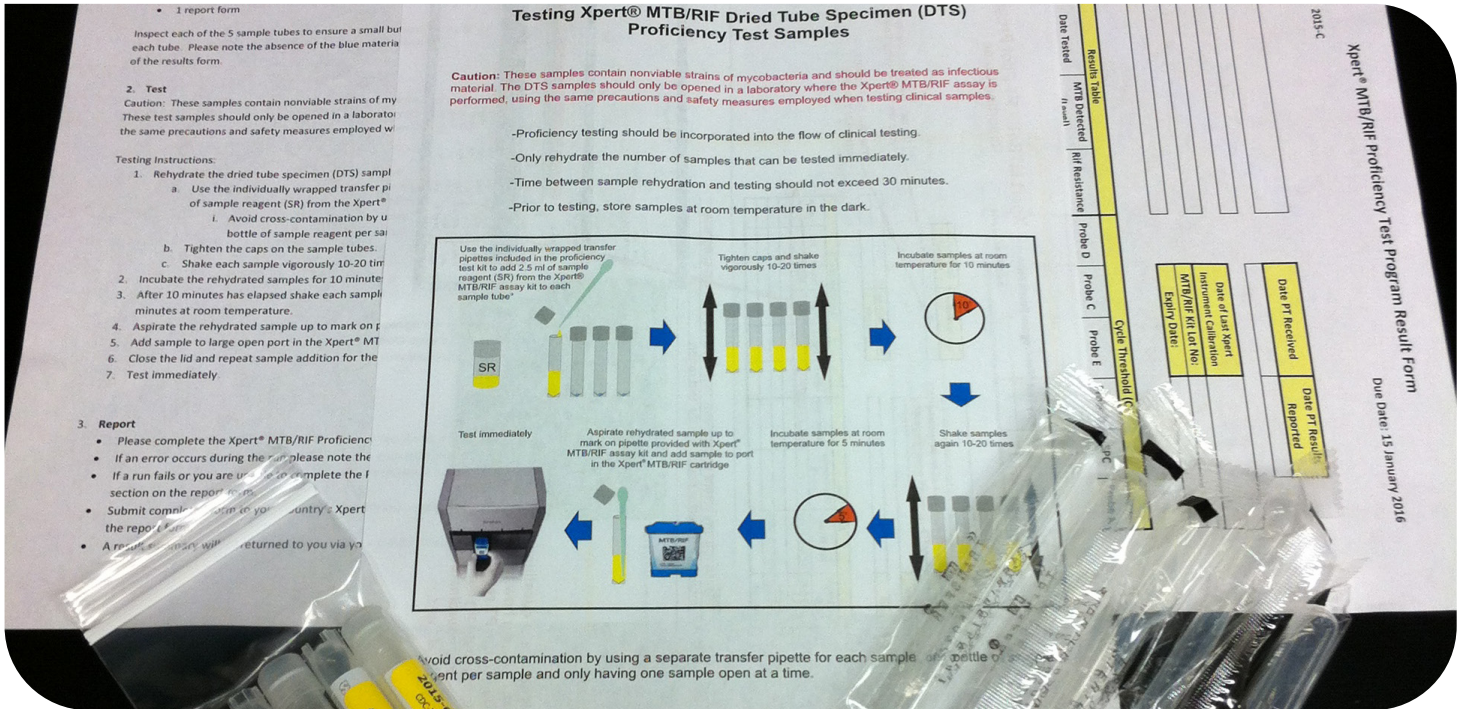
Revolutionizing Malaria Detection: CDC's New Assay

The invasive *Anopheles stephensi* (*An. stephensi*) mosquito poses a huge risk to global progress against malaria because it thrives in urban environments, is resistant to common insecticides, and can transmit malaria year-round. However, *An. stephensi* can be difficult to distinguish from other mosquitoes, making it tough for scientists to track its spread. Until now, there were no easily accessible molecular tools to rapidly detect invasions of *An. stephensi*. In summer 2023, a CDC team of experts created an innovative, simple, and accessible assay to identify *An. stephensi* in the field.

The team worked tirelessly to get the assay right – rearing mosquitoes, conducting DNA extraction, analyzing PCRs and gels, and testing with different reagent concentrations at different times and temperatures. The result is known as the CLASS assay, and it can be used anywhere, without the need for a full molecular laboratory or highly trained molecular biologists. The CLASS assay will not only help with early detection and accurate identification of *An. stephensi*, but also help researchers understand the changing malaria landscape and how to best prepare and rapidly respond.



Fatimatou Ibrahim, a community health worker, distributes malaria prevention medication to children during the 2019 rainy season in Cameroon. PMI and partners provide commodities and necessary training to health workers like Fatimatou to rollout distribution campaigns. Credit: Natalie Hendler, PMI Impact Malaria



A Xpert TB Proficiency Testing program sample kit that includes CDC-developed Dried Tube Specimens and instructions and is shipped to CDC-supported testing sites around the world. Credit CDC ILB

Innovation Expands Reliable and Equitable Testing for Drug-Resistant TB in 23 Countries

When it comes to diagnosing drug-resistant TB (DR-TB), timing is critical. Once laboratories receive a sample, the clock starts ticking to identify it and determine if it responds to antibiotic treatment. To test whether the skills, materials, and machines needed are available and working properly to meet the recommended timelines, laboratories enroll in proficiency testing (PT) programs.

With support from PEPFAR, CDC piloted an innovative new proficiency testing program in 2013 called global Xpert TB Proficiency Testing (XTPT). By adapting a technology CDC previously developed for rapid

HIV testing, XTPT provides countries with a means of proficiency testing that is stable, precise, and can be produced in resource-limited settings. By 2023, XTPT had successfully scaled to over 1,200 testing sites across 23 countries. It transformed from a new, innovative CDC global public health service to a multi-region, sustainably funded, locally led operation. The program stands today as an innovative example of how, through collaborative partnerships and thoughtful advances in scientific technology, we can support countries with limited resources to detect critical diseases accurately and reliably.

“CDC combats antimicrobial resistance globally with a One Health approach, investing in infrastructure to detect, respond, contain, and prevent infections in healthcare settings, communities, food supply, and the environment.”

– Dr. Dan Jernigan

Director, CDC National Center for Emerging and Zoonotic Infectious Diseases

Policy, Communication, and Diplomacy

CDC aims to foster health diplomacy by building relationships that promote the use of evidence-based public health policy, communicate risk, and disseminate prevention messages in response to health threats.



CDC's global policy, communication, and diplomacy efforts focus on translating data into public health action, ensuring people have the right information at the right time, and increasing trusted partnerships and diplomatic relationships that drive global health success.

“Our global health investments have been able to deliver long-term value – not only in terms of human health and the incredible impact on lives saved – but also on health diplomacy, respect, and trust.”

**– Dr. Kayla Laserson,
Director, CDC Global Health Center**

Local Campaign Increases Hepatitis B Birth Dose Vaccination in Africa

Of the six million children under the age of five living with hepatitis B, four million are in Sub-Saharan Africa. To address this inequity, CDC and the Coalition for Global Hepatitis Elimination (CGHE) at The Task Force for Global Health partnered with local civil society organizations in Africa to encourage hepatitis B vaccination at birth. In 2022, CDC launched a campaign focused on a primary message: *A hepatitis B birth dose vaccine is an essential vaccine that will save lives.*

CDC and CGHE offered communications expertise, while civil society organizations tailored materials using local languages and following cultural norms. The message appeared on posters and stickers, on radio shows, in news stories, social media, and policy briefs. In Cameroon, Care for Social Welfare International turned the message into a catchy jingle. Partners in Uganda also wrote a song and shared materials widely with healthcare workers, journalists, and key decision-makers. In 2023, Uganda's Ministry of Health introduced the hepatitis B birth dose vaccine into its immunization schedule, giving infants a better chance at a longer, healthier life.



A healthcare worker speaks to a mother in Angola about the vaccinations her newborn will receive. The hepatitis B vaccine is now provided for free to all newborns in Angola. Credit: ©UNICEF/U.S.CDC/UN0828232/Prinsloo

In countries with limited resources and competing health threats, local collaborations can provide trusted, credible information to communities that need it most. They also produce a community of advocates who keep fighting for vital health services long after the campaigns end.



A nurse in Belize teaches key times to wash hands. Credit: CDC Staff

CDC and Partners Mobilize to Improve Hand Hygiene in Central America's Schools

To reduce the spread of COVID-19 among Central America's schoolchildren, CDC partnered with research institutions and ministries of health and education to support water, sanitation, and hygiene (WASH) activities in 12 project schools across Belize, El Salvador, and Guatemala.

After uncovering gaps in students' knowledge and practice of hand hygiene, inconsistent lessons in curriculums, and shortages of supplies, CDC and partners developed a series of hand hygiene promotion programs based on the unique needs of each setting.

The schools used the guidance to organize hygiene festivals, create lesson plans, and place behavioral "nudges" like signs and painted footsteps leading to sinks for handwashing. Partners quickly observed improvements in students' hand hygiene knowledge, showing that localized approaches can improve health in areas with limited access to resources.

CDC continues to collaborate with domestic and global partners to improve access to WASH services and infrastructure around the world.

Established in 2023, CDC's Central America and Caribbean Regional Office (CACRO), located in Panama City, Panama, is positioned to build on CDC's longstanding critical work in the region.



A research assistant at the Universidad del Valle de Guatemala (UVG) in Guatemala City inspects the effects of insecticides on Aedes aegypti mosquitoes at the school's insectary. Credit: Nick Tenorio/CDC



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